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ABSTRACT

The results of a survey of all degrees conferred in the state of Massachusetts during 1987-88 are presented. Statistics include the following: the public colleges and universities in Massachusetts conferred over 24,000 degree and certificates during the 1987-88 academic year; 58% of the people receiving degrees were women; only 6.1% of the degrees were earned by minorities; a slightly higher proportion of Massachusetts awards went to both women and minorities during the academic year 1987-88 than during the previous year; the three Massachusetts public universities accounted for 43% of the degrees and certificates, followed by community colleges and then state colleges; only 3.3% of the degrees and certificates awarded by the state colleges were earned by minorities; 54% of all awards were baccalaureate degrees; the proportions of all degrees and certificates awarded in each academic field ranged from 25% of all awards in business and management to only 3% and 4% of all awards in physical and life sciences, and math and computer and information sciences respectively; and about 1 year separated the average ages of women (28.0) and men (26.8). Appended is information on U.S. public sector awards and enrollment. (SM)

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1987-88 Degrees Conferred Report

Massachusetts Public Higher Education

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Summary

The public colleges and universities of Massachusetts conferred over 24,000 degrees and certificates during the 1987-88 Academic Year. More women (58%) than men received degrees. This proportion is higher in Massachusetts than it is nationally (53%). By contrast, the number of degrees awarded minorities is significantly lower. Only 6.1% of the degrees were earned by minorities, compared with a national figure of 14.1%. However, minorities comprised a lesser percentage of public sector enrollments in Massachusetts (9.3%) and a lower proportion of the state's population (8.3%) in comparison with national enrollment and population figures (19.0% and 19.5% respectively). In addition, slightly higher proportions of Massachusetts awards went to both women and minorities during AY 1987-88 than during the previous academic year (57% and 5.7% for AY 1986-87).

For Blacks and Hispanics in particular, the above figures show little relative change. About 4.3% of the Massachusetts awards were earned by Blacks and Hispanics while nationwide, 10.5% of all degrees were awarded to these groups. Hispanics and Blacks made up 6.8% of public sector enrollments in the Commonwealth and 6.2% of the state's population. On the national level, 14.5% of all public sector enrollments and 17.5% of the population at large were Blacks and Hispanics[1].

The three Massachusetts public universities accounted for 43% of the degrees and certificates, followed by the community colleges (32%) and the state colleges (25%). In awarding degrees to women, the community colleges (65%) led the state colleges (63%) and the universities (50%). Minority degrees, on the other hand, were concentrated in the community colleges (8.5%) and the universities (6.1%). Only 3.3% of the degrees and certificates awarded by the state colleges were earned by minorities.

More than half (54%) of all awards were baccalaureate degrees. Associate's and master's degrees made up 31% and 11% of all awards respectively, followed by pre-baccalaureate certificates (2%), doctorate degrees (1%), and other post-baccalaureate awards (1%). Relative to the overall proportion of awards earned by women, a high percentage of women earned pre-baccalaureate certificates (83%) and a slightly high proportion earned associate's degrees (62%). Slightly low percentages of women were among baccalaureate and master's degree recipients (55% and 56% respectively), and there was a very low representation of women among recipients of doctorate degrees (40%). Similarly, minorities earned a high percentage of all pre-baccalaureate certificates (13.1%)

and a slightly high proportion of all associate's degrees (8.0%). Though minority students obtained only 4.6% of all baccalaureate degrees, they earned 6.6% of all master's degrees and 8.5% of all doctorate degrees.

The proportions of all degrees and certificates awarded in each academic field ranged from 25% of all awards in Business and Management to only 3% and 4% of all awards in Physical and Life Sciences, and Math and Computer and Information Sciences respectively. Though women earned 58% of all degrees and certificates, they earned 47%, 38%, and only 15% of all Physical and Life Sciences, Math and Computer and Information Sciences, and Engineering awards respectively. In contrast, 89% and 81% of all awards in Health Sciences and Education went to women. Minorities earned high proportions of all awards in the Math and Computer and Information Sciences (11.3%) and Engineering (7.6%) categories[2].

Some of the specific findings include:

- Between July 1, 1987 and June 30, 1988, a total of 24,481 degrees and certificates were awarded by the public universities, state colleges, and community colleges of Massachusetts[3][4].
- While over half (51%) of all awards earned by men came from the universities, only 37% of all awards earned by women came from this segment. Conversely, at the community colleges, the proportion of all awards earned by women (36%) was higher than the percentage of all awards earned by men (27%).
- The distribution of race across segments shows that over 53% and 47% of all awards earned by Blacks and Hispanics respectively were presented by the community colleges. About 50% of all awards earned by Asians, on the other hand, were presented by the universities.
- The average age of all recipients was 27.5 years old. Those at the community colleges had the highest mean age (28.5 years), followed by recipients at the state colleges (27.1 years) and the universities (26.9 years).
- About one year separated the average ages of women (28.0 years) and men (26.8 years).
- Minority recipients were about one to three years older than their White counterparts (27.2 years). Blacks averaged 29.9 years old, Hispanics 28.3 years old, Asians 28.7 years old, and Native Americans 30.4 years old.

- Doctorate degree recipients had the highest mean age (35.9 years), followed by recipients of master's degrees (33.1 years), pre-baccalaureate certificates (32.9 years), and associate's and baccalaureate degrees (28.6 and 25.6 years respectively). The highest proportions of associate's (23%), master's (38%), and doctorate (57%) degree recipients all fell in the same age group - 30 to 39 years old.

Introduction

Each year the Board of Regents of Higher Education collects information on the degrees and certificates conferred by the public colleges and universities of Massachusetts. The gender, race/ethnicity, and age of all degree recipients along with the award level, the field of the degree, and other characteristics of the awards are analyzed to identify patterns in the conferral of academic awards by these institutions. Last year's report (IPEDS) showed that women earned over 57% and minorities earned 5.7% of all degrees and certificates awarded during AY 1986-87. This study shows increases in both of these figures for AY 1987-88 (58% and 6.1% respectively). Further gender and racial/ethnic breakdowns by segment (universities, state colleges, and community colleges), award level, academic field of degree, and age follow in the body of this report. Also included are the most recent national completions data for the public sector (AY 1986-87) against which the Massachusetts figures may be compared.

All Awards

Of the 24,481 degrees and certificates conferred by the public colleges and universities of Massachusetts during AY 1987-88, baccalaureate degrees made up the majority (54%)(see Table 1 and Figure 1)[5]. Almost 77% of all awards presented by the universities and over 85% of those conferred by the state colleges were baccalaureate degrees. Associate's and master's degrees comprised 31% and 11% of all awards respectively. Just over 1% of all awards were doctorate degrees while slightly under 1% were either first professional or other post-baccalaureate awards[6]. On the national level, a much higher proportion of awards were pre-baccalaureate certificates (14.2%) while baccalaureate and associate's degrees made up lesser percentages of the total (45.6% and 24.8% respectively)(see Table 1 and Figure 2)[7].

Figure 1 – Massachusetts Public Sector
All Awards by Degree Level

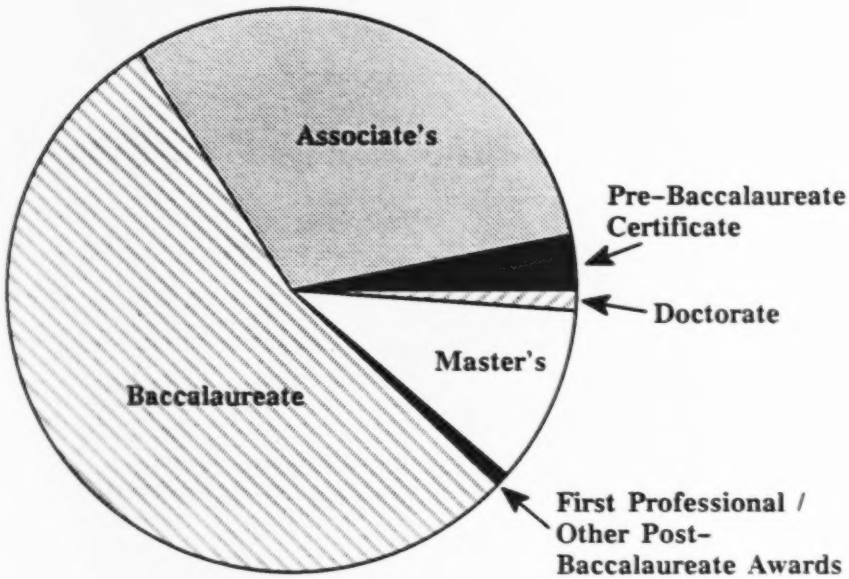


Figure 2 – U.S. Public Sector
All Awards by Degree Level

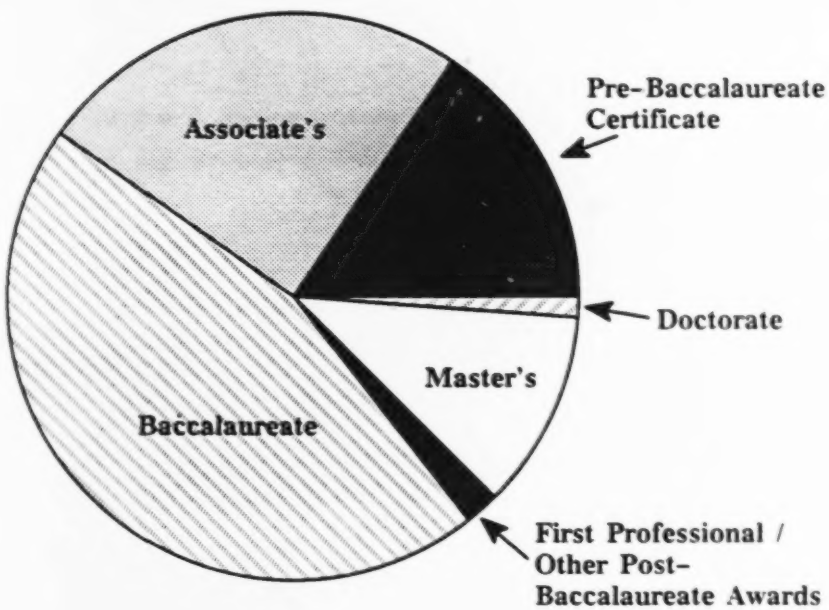


Table 1

Awards by Degree Level by Segment (Row %)

Segment	Total	Pre-Bacc. Certificate	Associate's	Bacc.	Master's	Doctorate	1st Prof/Other Post-Bacc.
Universities	10,537	0.3%	1.9%	76.7%	17.0%	2.8%	1.3%
State Colleges	6,035	---	---	85.3%	13.1%	---	1.6%
Community Colleges	7,909	7.2%	92.8%	---	---	---	---
Total	24,481	2.4%	30.8%	54.0%	10.5%	1.2%	0.9%
U.S. (Public Inst.) (AY 1986-87)	1,459,685	14.2%	24.8%	45.6%	11.6%	1.5%	2.3%

The distribution of awards across segments shows that, as expected, all of the doctorate degrees were presented by the universities and nearly all of the pre-baccalaureate certificates and associate's degrees were presented by the community colleges (see Table 2)[8].

Table 2

Awards by Degree Level by Segment (Column %)

Segment	Total	Pre-Bacc. Certificate	Associate's	Bacc.	Master's	Doctorate	1st Prof/Other Post-Bacc.
Universities	43.0%	5.2%	2.7%	61.1%	69.3%	100.0%	57.8%
State Colleges	24.7%	---	---	38.9%	30.7%	---	42.2%
Community Colleges	32.3%	94.8%	97.3%	---	---	---	---
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Over 25% of all awards and 34% of all awards at the community colleges were in Business and Management (see Table 3). Awards in the Physical and Life Sciences, and Math and Computer and Information Sciences categories comprised only 3% and 4% of all awards respectively. Between 9% and 13% of all degrees and certificates were awarded in each of the other academic fields[9].

Table 3

Awards by Field of Degree by Segment (Row %)

Segment	Total	Hum/ Letters	Bus/ Mgmt	Math/ Comp/Info	Ed.	Engin/ Tech.	Health Sciences	Other	Phys/Life Sciences	Soc. Sci./ Pub. Aff.
Univ.	10,537	8.9%	21.6%	5.0%	8.3%	14.3%	6.3%	13.3%	6.0%	16.4%
S.C.	6,035	11.3%	20.5%	4.6%	23.8%	0.9%	7.4%	11.9%	3.0%	16.6%
C.C.	7,909	19.6%	34.2%	2.6%	2.4%	9.5%	18.3%	12.7%	0.1%	0.5%
Total	24,481	12.9%	25.4%	4.1%	10.2%	9.4%	10.4%	12.8%	3.4%	11.3%

The distribution of awards across segments varied greatly by academic field (see Table 4). Very few of the awards in the Physical and Life Sciences (1.1%), Social Sciences and Public Affairs (1.6%), and Education (7.7%) categories were presented by the community colleges and very few of the Engineering awards (2.4%) were presented by the state colleges. The universities, on the other hand, presented large proportions of the awards in the Physical and Life Sciences (77%), Engineering (65%), and Social Sciences and Public Affairs (62%) categories.

Table 4

Awards by Field of Degree by Segment (Column %)

Segment	Total	Hum/ Letters	Bus/ Mgmt	Math/ Comp/Info	Ed.	Engin/ Tech.	Health Sciences	Other	Phys/Life Sciences	Soc. Sci./ Pub. Aff.
Univ.	43.0%	29.5%	36.6%	52.2%	35.0%	65.1%	26.0%	44.9%	76.5%	62.3%
S.C.	24.7%	21.5%	19.9%	27.2%	57.4%	2.4%	17.4%	23.0%	22.4%	36.1%
C.C.	32.3%	49.1%	43.5%	20.6%	7.7%	32.5%	56.6%	32.0%	1.1%	1.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Gender

Women earned close to 58% of all degrees and certificates in Massachusetts as compared to only 53% of all awards nationally (see Table 5). Though only half of the awards presented by the universities went to women, 65% and 63% of the awards presented by the community colleges and the state colleges respectively went to women. The distribution of awards across segments shows that while just over half (51%) of all awards earned by men were presented by the universities, only 37% of all awards earned by women came from this segment (see Table 6). At the community colleges, however, the proportion of all awards earned by women (36%) was higher than the percentage of all awards earned by men (27%).

Table 5

Gender by Segment (Row %)

Segment	Total	Men	Women
Universities	10,537	50.4%	49.6%
State Colleges	6,035	37.4%	62.6%
Community Colleges	7,909	35.3%	64.7%
Total	24,481	42.3%	57.7%
U.S. (Public Inst.) (AY 1986-87)	1,459,685	47.4%	52.6%

Table 6

Gender by Segment (Column %)

Segment	Total	Men	Women
Universities	43.0%	51.2%	37.0%
State Colleges	24.7%	21.8%	26.8%
Community Colleges	32.3%	26.9%	36.2%
Total	100.0%	100.0%	100.0%

More than four times as many women (83%) as men (17%) earned pre-baccalaureate certificates (see Tables 7 and 8 and Figure 3). Relative to the overall proportion of awards earned by women (58%), a slightly high percentage of women earned associate's degrees (62%) while slightly low percentages of women earned baccalaureate and master's degrees (55% and 56% respectively). Women obtained the lowest proportions of these three awards from the universities, which also presented only 40% of all doctorate degrees in the system to women. On the national level, the distribution of awards within each degree level was much more balanced by gender with the exception of doctorate degree recipients, only 36% of whom were women (see Figure 4).

Table 7

Gender by Degree Level by Segment (Women)

Segment	Total	Pre-Bacc. Certificate	Associate's	Baccalaureate	Master's	Doctorate
Universities	49.6%	80.6%	29.3%	50.8%	47.1%	40.3%
State Colleges	62.6%	---	---	60.7%	74.9%	---
Community Colleges	64.7%	82.9%	63.3%	---	---	---
Total	57.7%	82.8%	62.4%	54.7%	55.7%	40.3%
U.S. (Public Inst.) (AY 1986-87)	52.6%	52.4%	56.7%	51.3%	54.2%	35.6%

Table 8

Gender by Degree Level by Segment (Men)

Segment	Total	Pre-Bacc. Certificate	Associate's	Baccalaureate	Master's	Doctorate
Universities	50.4%	19.4%	70.7%	49.2%	52.9%	59.7%
State Colleges	37.4%	---	---	39.3%	25.1%	---
Community Colleges	35.3%	17.1%	36.7%	---	---	---
Total	42.3%	17.2%	37.6%	45.3%	44.3%	59.7%
U.S. (Public Inst.) (AY 1986-87)	47.4%	47.6%	43.3%	48.7%	45.8%	64.4%

Figure 3

Gender by Degree Level

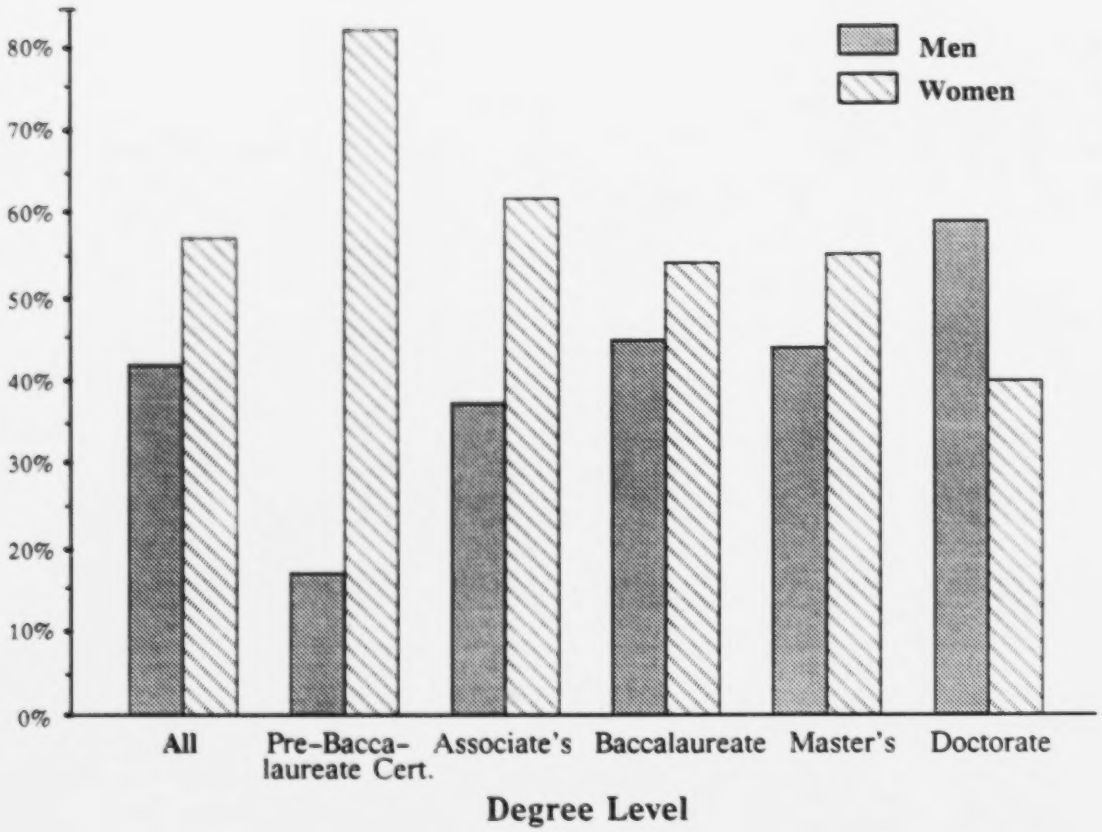
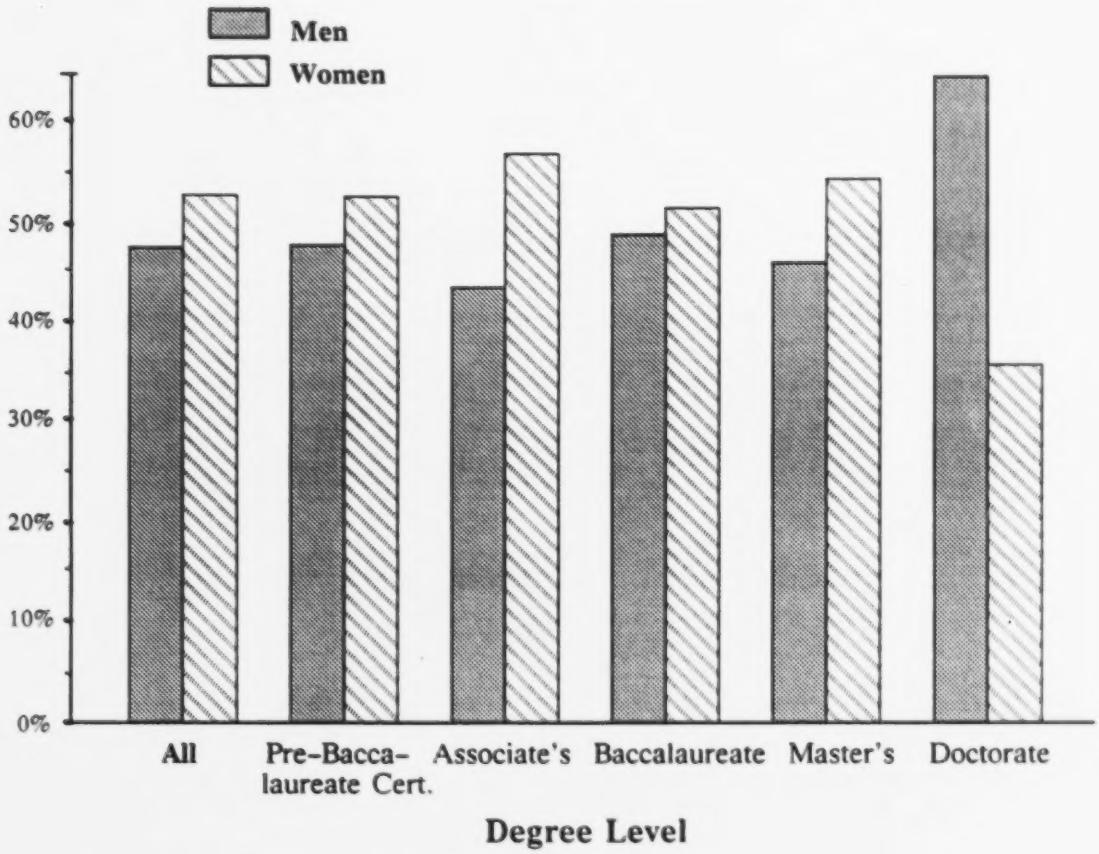


Figure 4 – U.S. Public Sector
Gender by Degree Level



Many of the academic field categories showed marked differences in the precentages of awards presented by gender (see Tables 9 and 10 and Figure 5). Women earned 58% of all awards but only 47% of the Physical and Life Sciences, 38% of the Math and Computer and Information Sciences, and 15% of the Engineering awards. In contrast, 89% and 81% of the Health Sciences and Education awards respectively went to women. At the community colleges, women earned an especially low percentage of the Physical and Life Sciences awards (11%) but a majority of the Computer and Information Sciences awards (58%).

Table 9

Gender by Academic Field by Segment (Women)

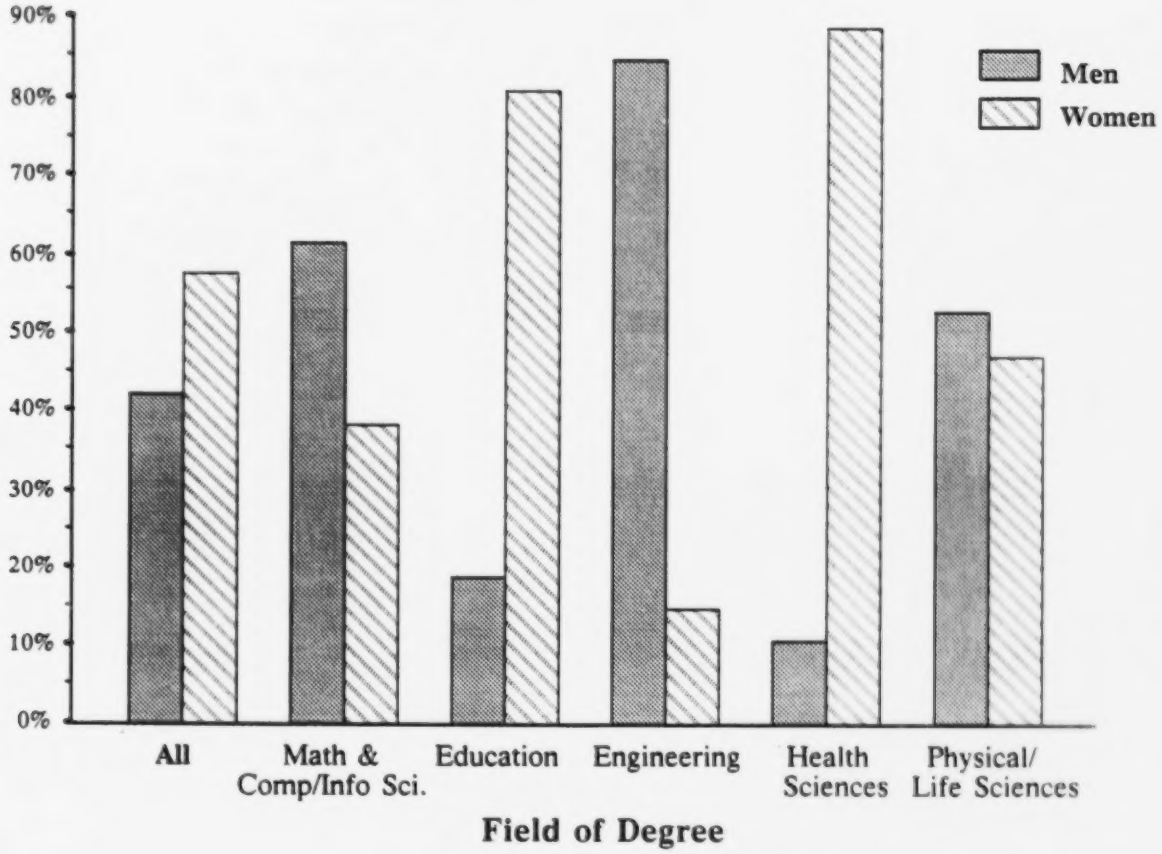
Segment	Total	Math & Comp/ Info. Sciences	Education	Engineering/ Tech.	Health Sciences	Physical/Life Sciences
Universities	49.6%	32.7%	74.3%	14.5%	82.5%	42.8%
State Colleges	62.6%	34.2%	84.3%	17.9%	91.7%	63.6%
Community Colleges	64.7%	58.2%	91.1%	15.0%	91.8%	11.1%
Total	57.7%	38.4%	81.3%	14.7%	89.4%	47.1%

Table 10

Gender by Academic Field by Segment (Men)

Segment	Total	Math & Comp/ Info. Sciences	Education	Engineering/ Tech.	Health Sciences	Physical/Life Sciences
Universities	50.4%	67.3%	25.7%	85.5%	17.5%	57.2%
State Colleges	37.4%	65.8%	15.7%	82.1%	8.3%	36.4%
Community Colleges	35.3%	41.8%	8.9%	85.0%	8.2%	88.9%
Total	42.3%	61.6%	18.7%	85.3%	10.6%	52.9%

Figure 5
Gender by Academic Field



Race / Ethnicity

Minorities earned 6.1% of all awards, with Blacks earning 2.9%, Hispanics 1.4%, Asians 1.5%, and Native Americans 0.3% of the total (see Table 11). In comparison, more than twice the overall proportion of awards were earned by minorities nationally (14.1%). Only 3.3% of all degrees and certificates presented by the state colleges were earned by minority students, but 6.1% and 8.5% of all awards presented by the universities and community colleges respectively were earned by minorities (see Figure 6). The distribution of race across segments shows that the community colleges presented 53% and 47% of all awards earned by Blacks and Hispanics respectively (see Table 12). The universities, on the other hand, presented 50% and almost 93% of all degrees and certificates earned by Asians and Non-Resident Aliens respectively.

Table 11

Race/Ethnicity by Segment (Row %)

Segment	Total	White	Black	Hispanic	Asian	Native American	Non-Resident Alien
Universities	10,537	87.4%	2.4%	1.5%	1.9%	0.3%	6.6%
State Colleges	6,035	96.1%	1.6%	0.7%	0.7%	0.3%	0.6%
Community Colleges	7,909	91.4%	4.5%	2.0%	1.6%	0.4%	0.2%
Total	24,481	91.0%	2.9%	1.4%	1.5%	0.3%	2.8%
U.S. (Public Inst.) (AY 1986-87)	1,459,685	82.9%	6.5%	4.0%	3.0%	0.6%	3.0%

Table 12

Race/Ethnicity by Segment (Column %)

Segment	Total	White	Black	Hispanic	Asian	Native American	Non-Resident Alien
Universities	43.0%	38.7%	32.7%	41.0%	50.3%	35.6%	92.7%
State Colleges	24.7%	26.5%	14.0%	12.1%	12.3%	24.7%	5.0%
Community Colleges	32.3%	34.8%	53.3%	46.9%	37.3%	39.7%	2.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 6
Minority Recipients by Segment and Degree Level

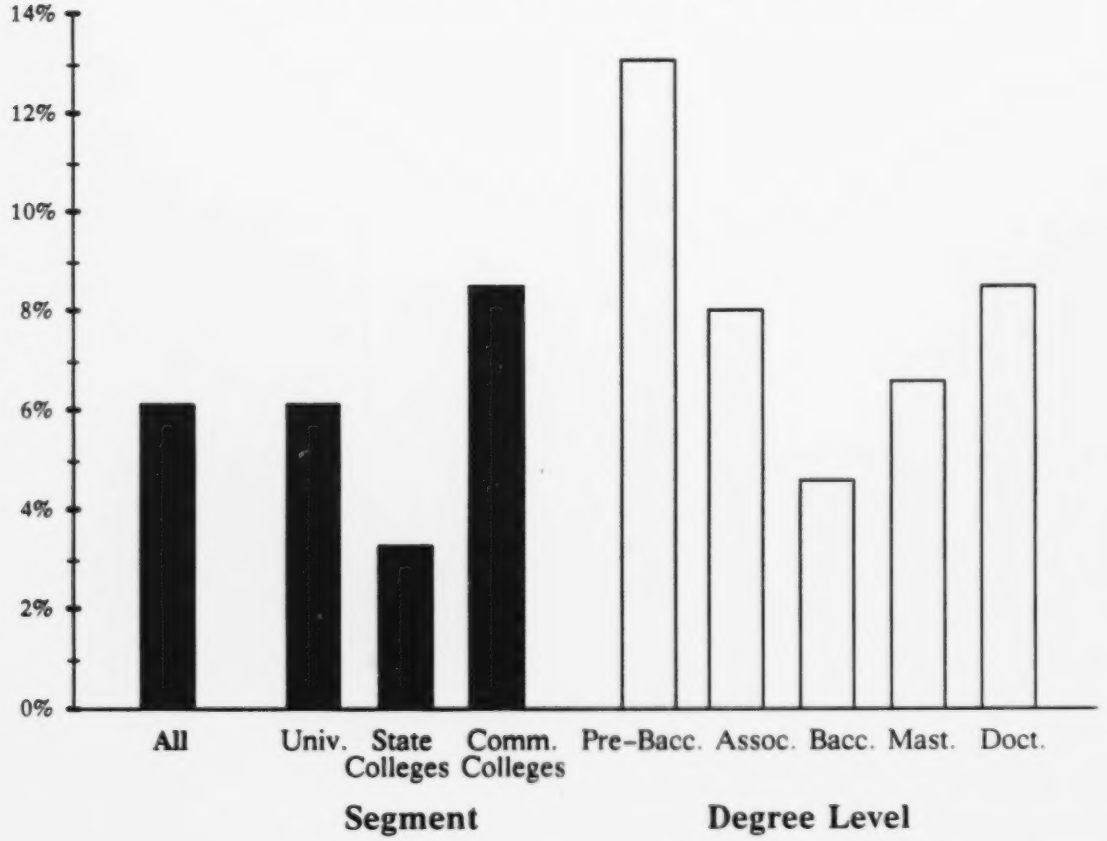
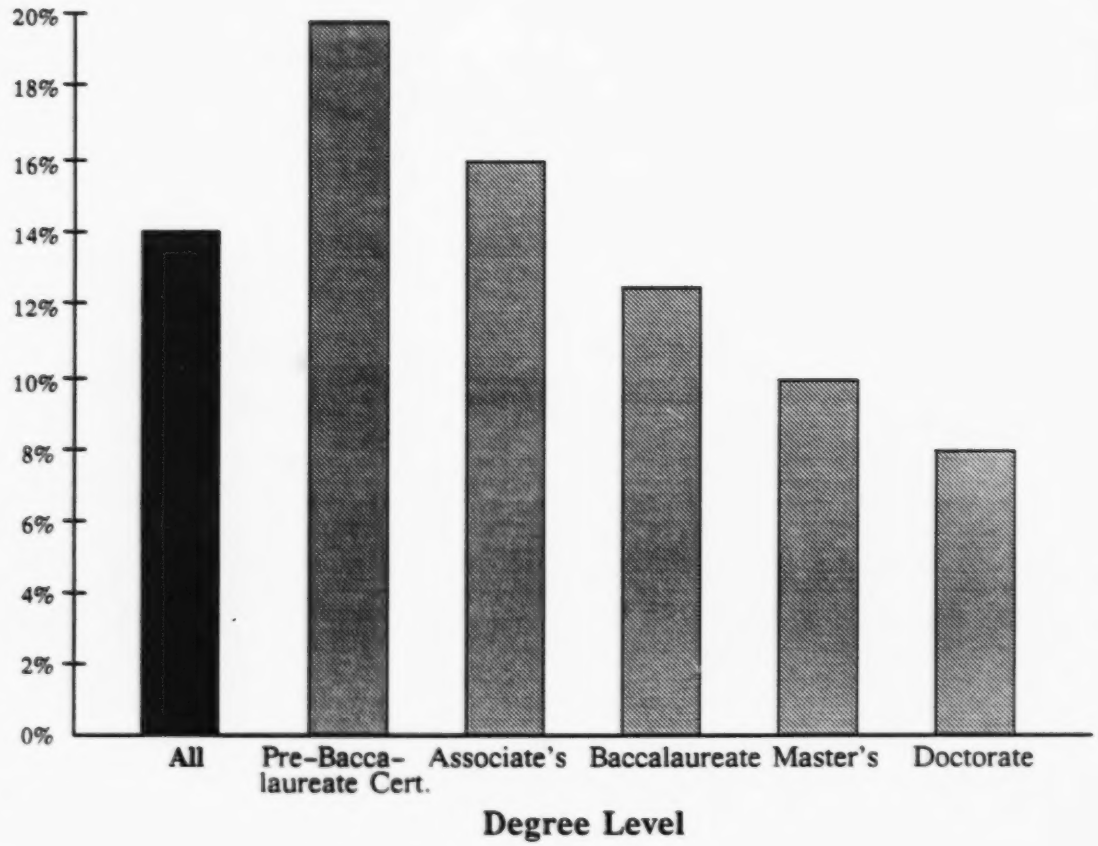


Figure 7 – U.S. Public Sector
Minority Recipients by Degree Level



The percentages of awards earned by minorities varied considerably by degree level (see Figure 6 and Table 13). The proportion of pre-baccalaureate certificates earned by minorities (13.1%) was almost three times the percentage of baccalaureate degrees earned by minority students (4.6%)[10]. The proportions of associate's (8.0%), master's (6.6%), and doctorate degrees (8.5%) which went to minorities were all higher than the overall percentage of awards earned by minorities (6.1%). Nationally, minorities earned 19.9% of all pre-baccalaureate certificates awarded in the public sector, followed by 16.0% of all associate's degrees, 12.5% of all baccalaureate degrees, and 9.9% and 7.9% of all master's and doctorate degrees respectively (see Figure 7 and Table 13).

Table 13

Minority Recipients by Degree Level by Segment

Segment	Total	Pre-Bacc. Certificate	Associate's	Baccalaureate	Master's	Doctorate
Universities	6.1%	0.0%	0.0%	5.6%	7.6%	8.5%
State Colleges	3.3%	---	---	3.3%	4.1%	---
Community Colleges	8.5%	13.2%	8.1%	---	---	---
Total	6.1%	13.1%	8.0%	4.6%	6.6%	8.5%
U.S. (Public Inst.) (AY 1986-87)	14.1%	19.9%	16.0%	12.5%	9.9%	7.9%

The proportion of degrees and certificates earned by minority students in each academic field remained within 1.0% of the overall percentage of awards earned by minorities with two exceptions (see Table 14). In the Math and Computer and Information Sciences and Engineering categories, minorities earned 11.3% and 7.6% of the respective awards. At the community colleges, minorities earned high percentages of Math and Computer and Information Sciences (20.0%), Education (16.7%), Engineering (12.4%), and Physical and Life Sciences (77.7%) awards, though the latter figure is misleading because of the very low total number (9) of such awards presented by this segment. No minority students obtained degrees or certificates in Engineering and Related Technologies from the state colleges.

Table 14

Minority Recipients by Field of Degree by Segment

Segment	Total	Hum/ Letters	Bus/ Mgmt	Math/ Comp/Info	Ed.	Engin/ Tech.	Health Sciences	Other	Phys/Life Sciences	Soc. Sci./ Pub. Aff.
Univ.	6.1%	5.0%	4.7%	9.7%	9.1%	5.1%	5.0%	5.5%	5.0%	7.5%
S.C.	3.3%	3.0%	3.5%	3.2%	2.3%	0.0%	1.4%	4.4%	5.0%	4.4%
C.C.	8.5%	6.7%	8.3%	20.0%	16.7%	12.4%	7.4%	5.5%	77.7%	10.0%
Total	6.1%	5.4%	6.1%	11.3%	5.7%	7.6%	5.8%	5.3%	6.0%	6.4%

Age

The mean age of all recipients was 27.5 years old (see Table 15). On the average, women (28.0 years) were over a year older than men (26.8 years), and minorities were one to three years older than Whites (27.2 years). Blacks averaged 29.9 years old, Hispanics 28.3 years old, Asians 28.7 years old, and Native Americans 30.4 years old. Recipients of awards at the community colleges were the oldest on the average (28.5 years), followed by those at the state colleges (27.1 years) and the universities (26.9 years)[11].

Table 15

Mean Age - Sex and Race/Ethnicity by Segment

Segment	Total	Men	Women	White	Black	Hispanic	Asian	Native American	Non-Resident Alien
Universities	26.9	26.6	27.3	26.4	29.7	28.2	27.2	30.0	29.1
State Colleges	27.1	26.5	27.5	27.1	27.7	29.4	26.2	34.4	26.7
Comm. Colleges	28.5	27.4	29.2	28.3	30.5	28.0	31.3	28.6	27.9
Total	27.5	26.8	28.0	27.2	29.9	28.3	28.7	30.4	28.9

The highest proportions of associate's (23%), master's (38%), and doctorate (57%) degree recipients all fell in the same age group - 30 to 39 years old (see Table 16 and Figure 8). However, the distribution of awards across age groups, along with overall mean ages, varied considerably by degree level. Recipients of doctorate degrees had the highest mean age (35.9 years), followed by master's degree recipients (33.1 years), recipients of pre-baccalaureate certificates (32.9 years), and those who received associate's and baccalaureate degrees (28.3 and 25.6 years respectively) (see Table 17). Recipients of pre-baccalaureate certificates from the universities, who averaged 59.8 years old, earned only 31 of these awards and thus, did not greatly influence the overall mean age at this level.

Table 16

Awards by Age Group by Degree Level (Row %)

Segment	Total	<21	21	22	23–24	25–29	30–39	40–59	60+
Associate's	7,544	9.2%	14.5%	10.7%	12.6%	18.8%	22.7%	11.0%	0.6%
Baccalaureate	13,230	0.0%	0.6%	28.6%	37.6%	18.3%	10.4%	4.1%	0.4%
Master's	2,581	0.0%	0.0%	0.0%	6.0%	36.3%	37.9%	18.5%	1.2%
Doctorate	298	0.0%	0.0%	0.0%	0.0%	15.6%	57.4%	26.3%	0.7%
Total	23,653	3.2%	5.1%	19.3%	25.5%	20.1%	17.8%	8.3%	0.6%

Figure 8
Degree Level by Age

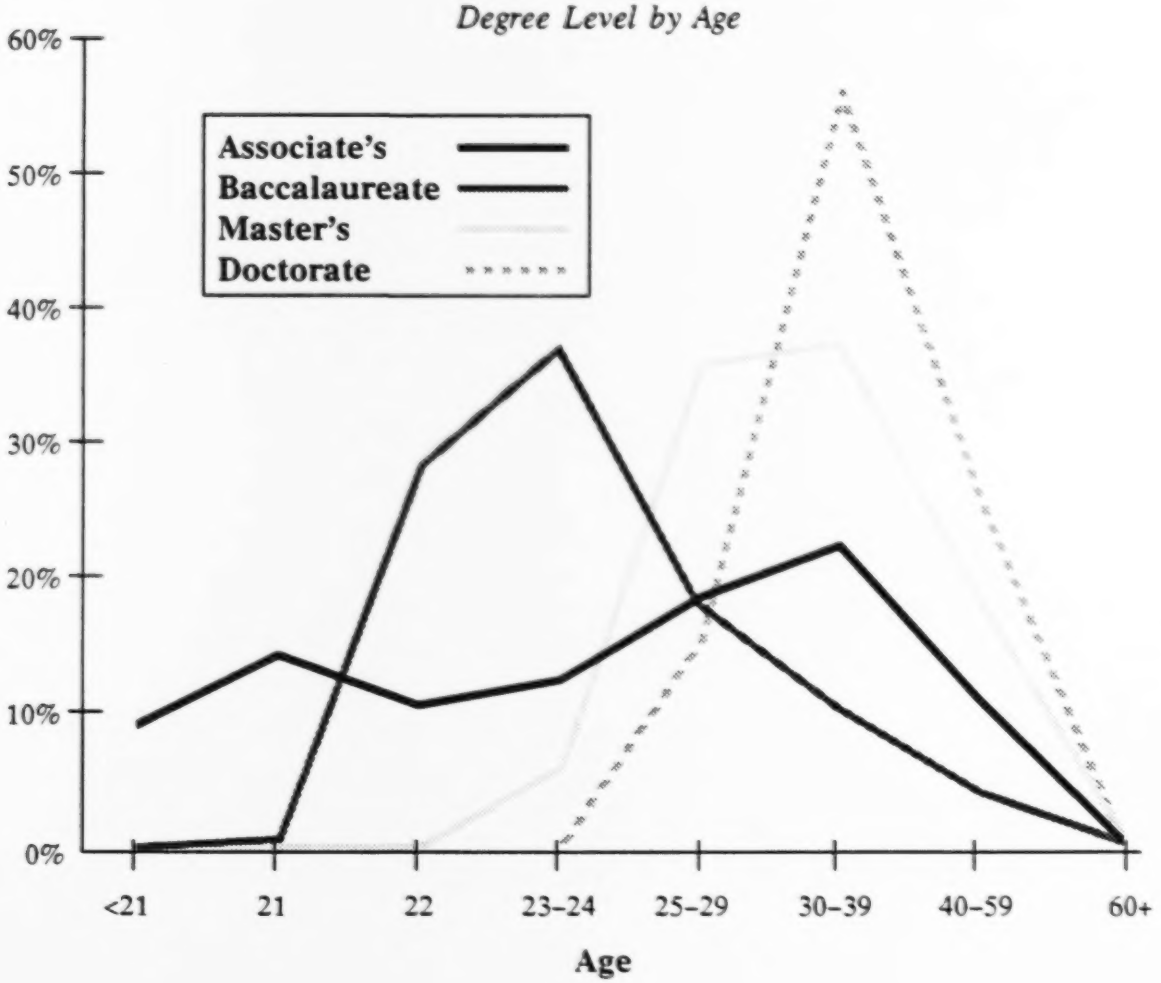


Table 17

Mean Age by Degree Level

Segment	Total	Pre-Bacc. Certificate	Associate's	Baccalaureate	Master's	Doctorate
Universities	26.9	59.8	27.9	25.4	31.9	35.9
State Colleges	27.1	---	---	26.0	37.2	---
Community Colleges	28.5	31.4	28.3	---	---	---
Total	27.5	32.9	28.3	25.6	33.1	35.9

The oldest recipients by academic field were those who earned awards in Education (30.8 years). Those who received awards in the Physical and Life Sciences (26.1 years), Other (26.2 years), Business and Management (26.3 years), and Engineering (26.4 years) categories had the youngest mean ages (see Table 18). It should be noted that since the average ages of recipients varied greatly by degree level, the average ages in different academic fields were influenced by the availability and size of programs granting higher level degrees in those fields.

Table 18

Mean Age by Field of Degree by Segment

Segment	Total	Hum/ Letters	Bus/ Mgmt	Math/ Comp/Info	Ed.	Engin/ Tech.	Health Sciences	Other	Phys/Life Sciences	Soc. Sci./ Pub. Aff.
Univ.	26.9	26.7	25.2	27.4	32.6	25.8	28.6	26.2	26.3	27.2
S.C.	27.1	27.1	25.5	26.8	29.4	29.0	28.3	25.1	25.4	27.6
C.C.	28.5	29.0	27.6	29.6	30.6	27.5	30.7	27.0	27.7	33.5
Total	27.5	27.9	26.3	27.7	30.8	26.4	29.8	26.2	26.1	27.5

Conclusions

During AY 1987-88, the community colleges presented the largest proportions of awards to women and minorities by segment. The state colleges, on the other hand, awarded the lowest percentage of degrees and certificates to minorities while the universities presented a relatively low percentage of awards to women. By degree level, both women and minorities earned very high proportions of all pre-baccalaureate certificates awarded. Relatively few doctorate degrees, however, went to women and a low proportion of baccalaureate degrees, which comprised over half of all awards in the system, went to minorities. The percentages of awards earned by women and men varied greatly by academic field. Though relatively few women earned awards in the Physical and Life Sciences, Math and Computer and Information Sciences, and Engineering categories, the Education and Health Sciences fields were heavily dominated by women. Minorities, on the other hand, earned a high proportion of all awards in Math and Computer and Information Sciences and a slightly high percentage of Physical and Life Sciences awards.

These findings point to a need to increase the percentage of awards earned by minorities at the state colleges. Among other minority recruitment efforts, these institutions, in collaboration with the community colleges, should further encourage the transfer of minority students from the community colleges into four year degree programs. This issue is addressed in a recent proposal by the Board of Regents to SHEEO (State Higher Education Executive Offices) seeking to establish two collaborative degree programs in teacher education between the community colleges and the state colleges and universities. An anticipated outcome of the proposal, for which monies now have been granted, is an overall increase in the transfer and graduation rates of minority students. In comparison to national data, the low representation of minorities among degree recipients in Massachusetts demonstrates the strong need for continued efforts in these areas.

Such programs also indirectly address the finding of relatively few minorities among recipients of baccalaureate degrees, since these awards made up over 85% of all degrees and certificates presented by the state colleges. Though women were not underrepresented among baccalaureate degree recipients, they comprised a very low percentage of those who received doctorate degrees both in Massachusetts and nationwide. The composition of baccalaureate and doctorate degree recipients by race/ethnicity and by gender is critical for at least two distinct reasons. Those who received baccalaureate degrees made up over half of all degree recipients, and consequently, strongly

influenced the composition of the system-wide population. Any significant increase in the overall percentage of minorities receiving awards, therefore, must be led by an increase in the proportion of minorities receiving baccalaureate degrees. Though relatively few in number, doctorate degree recipients, having attained awards at the highest academic levels, maintain options of entering higher education teaching and research or of accepting high level job opportunities afforded by their advanced degrees. As cited in *1987 New Hires and Total Employment*, the relatively low proportions of women among both faculty new hires and employees in Massachusetts public higher education highlight the need for greater representations of women among doctorate degree recipients. The findings in this report also demonstrate the need for more even balances of men and women in over half of the academic fields in which degrees were conferred.

Because the 1987-88 degrees conferred data and enrollment figures for the same year represent two distinct populations, they cannot be compared for the purpose of determining attrition rates. Still, considerable disparities between the percentage of a certain category of students enrolled in the system and the corresponding percentage which obtained degrees, even for the same year, would indicate a possible area of concern warranting close tracking and examination in further study. Though the proportion of women who obtained degrees in AY 1987-88 was slightly higher than that of women enrolled in the fall of 1987, a lower percentage of minorities obtained degrees (6.1%) than were enrolled (9.3%) during that year. This preliminary comparison identifies an apparent need to continue to increase the graduation rates of minority students to more closely reflect the corresponding enrollments of these groups. Student attrition, therefore, should remain a top priority for future annual reporting and for further, more in-depth study. Efforts must be focused on ensuring that all groups of students complete programs at least at the same relative rates at which they enroll if the access of all citizens of the Commonwealth to quality higher education is to have real meaning in the long-term.

Notes

[1] Enrollment data for the public colleges and universities of Massachusetts were taken from the Integrated Postsecondary Education Data System (IPEDS) 1987 Summary Report (p. 7). National enrollment data were taken from the E.D. TABS *Postsecondary Fall Enrollment, 1986* report (pp. 13, 27, 33) published by the Center for Education Statistics, U.S. Department of Education. This data cover only the public sector and do not include less than two year proprietary schools since (1) no race/ethnicity data were given for these institutions and (2) Massachusetts does not report on these schools (see Table A1 in Appendix). The percentage of all minorities in the Commonwealth is based on 1985 data obtained from the Massachusetts Institute for Social and Economic Research. The proportion of all minorities in the national population and that of only Blacks and Hispanics in Massachusetts both were derived from 1980 census data presented in *Almanac of the 50 States - Basic Data Profiles with Comparative Tables*, 1989 Edition, Information Publications. These percentages may be slightly high due to the potential double counting of Hispanics.

[2] The 1987-88 degrees conferred data are the first completions data to be drawn from the Research and Planning, Enrollment and Degrees System (RPEDS) student unit record database. These figures represent results from the initial testing year for the RPEDS degrees conferred data. The Statistical Supplement to this report provides data on the institutional level and is available at the Board of Regents, Office of Research, Information Systems, and Assessment.

[3] The total number of awards includes 32 certifications by the Commonwealth, not the schools themselves. These recipients successfully completed programs which were taught and administered by the schools for the purpose of receiving state certification.

[4] Of all 24,481 awards, 141 or 0.6% went to recipients of multiple awards.

[5] Unknown data were prorated for all percentages in the body and the appendix of this report. Tables presenting frequencies or actual counts of awards are not prorated and consequently, the sex, race, and age figures sometimes do not sum exactly to the totals. Unknown data by segment are presented in the table below. While the overall proportion of unknown sex data was negligible (0.1%) and that of age data was minor (3.6%), there was a notable percentage of unknown race/ethnicity data (13.2%). This in part was due to the inclusion of recipients

with "other" race/ethnicity among unknowns since some schools did not distinguish between these and truly "unknown" cases. Still, the relatively high percentage of unknown race/ethnicity data should be noted when interpreting these statistics.

Unknown Sex, Race, and Age by Segment

Segment	Total	Sex	Race	Age
Universities	10,537	0.2%	18.8%	2.5%
State Colleges	6,035	0.0%	11.4%	8.0%
Community Colleges	7,909	0.1%	7.0%	1.7%
Total	24,481	0.1%	13.2%	3.6%

[6] Only recipients of Ph.D. degrees were included under the "Doctorate Degrees" category. Recipients of M.D. degrees were included under "First Professional / Other Post-Baccalaureate Awards." The "Pre-Baccalaureate Certificate" category included less than one year, less than two year, and less than four year certificates, though none of the latter were granted by the public colleges and universities of Massachusetts during AY 1987-88.

[7] The national completions data for AY 1986-87 were obtained from the Office of Postsecondary Education - Statistics Division, Center for Education Statistics, U.S. Department of Education. The data presented in this report cover only the public sector. Unknown data were prorated for all percentages but not for frequencies (see Tables A2 and A3 in Appendix).

[8] Of note are the large number and proportion of awards presented by the University of Massachusetts at Amherst. The 5,536 degrees and certificates conferred by this university comprised close to 53% of all awards which came from the universities and 23% of all awards in the entire system.

[9] The academic field categories correspond to specific combinations of two-digit Classification of Instuctional Programs (CIP) codes, published by the Center for Education Statistics, U.S. Department of Education. Below is a listing of the categories and the corresponding two-digit CIP codes.

Category	Two Digit CIP codes
Arts, Humanities, and Letters	16, 23, 24, 38, 39, 50
Business, Management, and Marketing	06, 07, 08
Education	13
Engineering and Related Technologies	14, 15
Health Sciences and Allied Health	17, 18
Math / Computer and Information Sciences	11, 27
Other	(remaining CIP codes)
Physical and Life Sciences	26, 40, 41
Social Sciences (and Psych.) / Public Affairs	42, 44, 45

[10] Since almost all of the pre-baccalaureate certificates came from the community colleges, the finding of a high proportion of minorities among recipients of these awards is not surprising. Yet, the percentage of minorities who earned pre-baccalaureate certificates (13.1%) still was notably higher than that of all minorities receiving awards at the community colleges (8.5%).

[11] The median age of all recipients was 24.0 years old. Many of the disparities observed in mean ages were attenuated or disappeared altogether for median ages. The median age figures in the Statistical Supplement indicate that some of the variation in mean ages was due to the skewness of the distribution. Concentrations of older women, for example, raised this sex's mean age more than a year above that of men, though the overall median ages for both men and women remained at 24.0 years old.

Appendix:

U.S. Public Sector Awards and Enrollment - Gender and Race/Ethnicity by Degree Level and Type of Institution

Table

Fall 1986 Enrollment

A1 ..... Frequencies and Row %

AY 1986-87 Completions

A2 ..... Frequencies
A3 ..... Row %

U.S. Public Sector -- **Table A1**

Fall 1986 Enrollment - Sex and Race by Type of Institution

Type of Institution	Total	GENDER		RACE					
		Men	Women	White	Black	Hispanic	Asian	Native American	Non-Res Alien
Greater than 2 but less than 4 years	4,608,511	2,022,347	2,586,164	3,438,091	451,942	333,931	179,877	48,951	48,649
		43.9%	56.1%	76.4%	10.0%	7.4%	4.0%	1.1%	1.1%
4 years and above	5,311,037	2,578,270	2,732,767	4,226,086	421,772	202,986	183,949	31,357	174,300
		48.5%	51.1%	80.6%	8.0%	3.9%	3.5%	0.6%	3.3%
* Total	9,919,548	4,600,617	5,318,931	7,664,177	873,714	536,917	363,826	80,308	222,949
		46.4%	53.6%	78.7%	9.0%	5.5%	3.7%	0.8%	2.3%

* Total does not include less than two year proprietary schools since (1) no race/ethnicity data were reported for these institutions and (2) Massachusetts does not report on these schools.

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U.S. Public Sector -- **Table A2**

1986-87 Completions - Sex and Race by Degree Level

Level of Award	Total	GENDER		RACE					
		Men	Women	White	Black	Hispanic	Asian	Native American	Non-Res Alien
* Pre-Baccalaureate Certificates	207,694	98,858	108,836	157,281	22,110	9,111	5,554	2,505	787
Associates Degrees	362,648	157,190	205,458	288,840	25,172	17,968	9,856	2,667	3,271
Baccalaureate Deg.	665,172	323,770	341,402	547,038	34,773	22,777	20,929	2,904	17,005
Masters Degrees	168,695	77,220	91,475	127,501	7,589	3,887	3,800	673	16,868
Doctorate Degrees	21,892	14,091	7,801	14,948	580	388	634	73	4,457
** Other Post-Baccalaureate Awards	33,584	20,296	13,288	28,598	1,584	1,421	1,002	162	333
Total	1,459,685	691,425	768,260	1,164,206	91,808	55,552	41,775	8,984	42,721

* Pre-Baccalaureate Certificates include less than one year, less than two year, and less than four year certificates.

** Other Post-Baccalaureate Awards include post-baccalaureate, post-masters, and first professional awards.

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U.S. Public Sector -- **Table A3**

1986-87 Completions (Row %) - Sex and Race by Degree Level

Level of Award	Total	GENDER		RACE					
		Men	Women	White	Black	Hispanic	Asian	Native American	Non-Res Alien
* Pre-Baccalaureate Certificates	207,694	47.6%	52.4%	79.7%	11.2%	4.6%	2.8%	1.3%	0.4%
Associates Degrees	362,648	43.3%	56.7%	83.1%	7.2%	5.2%	2.8%	0.8%	0.9%
Baccalaureate Deg.	665,172	48.7%	51.3%	84.8%	5.4%	3.5%	3.2%	0.4%	2.6%
Masters Degrees	168,695	45.8%	54.2%	79.5%	4.7%	2.4%	2.4%	0.4%	10.5%
Doctorate Degrees	21,892	64.4%	35.6%	70.9%	2.8%	1.8%	3.0%	0.3%	21.1%
** Other Post-Baccalaureate Awards	33,584	60.4%	39.6%	86.4%	4.8%	4.3%	3.0%	0.5%	1.0%
Total	1,459,685	47.4%	52.6%	82.9%	6.5%	4.0%	3.0%	0.6%	3.0%

* Pre-Baccalaureate Certificates include less than one year, less than two year, and less than four year certificates.

** Other Post-Baccalaureate Awards include post-baccalaureate, post-masters, and first professional awards.

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